3rd Annual Public Health Information Network
(PHIN) Conference

QUALITY ENHANCEMENTS

FROM EHRs

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AGENDA

- EHR adoption

- Enhanced quality today

- Barriers to progress

- Future promise

WHY PHYSICIANS ARE BUYING

- Improve financial performance

- Improve quality of care

- Reduce malpractice risk

- Meet HIPAA, other government regulations

- Improve job satisfaction for providers and staff

MAIN STREET PEDIATRICS (MSP)

- Average of 10 providers

- Paperless office for over four years

- EHR interfaced with practice management system

MSP: IMPROVED FINANCIAL PERFORMANCE

- Billing at a more accurate (higher) level
  - Level 4 and 5 codes from 5% of billings to 25%
  - Lost charges from 2% per year to none

- Improved efficiency
  - Collections from $2.28 to $4.2 million
  - Patient volume from 110 to 130 patients per day (18%)
  - Days in receivables from 120 to 24

MSP: IMPROVED FINANCIAL PERFORMANCE

- Labor savings
  - 300 chart pulls per day reduced to *none*
  - 50% reduction in clinical and clerical staff time

- 50% reduction in office supply costs

- 3% reduction in malpractice rates

- *90% increase in net income over four years*

POTENTIAL QUALITY BENEFITS

- Clinical
  - Documentation
  - Information transfer
  - Decision support
  - QA/QI

- Research/public health/policy
  - Research/knowledge management
  - Public Health
  - Policy/accountability

DOCUMENTATION

- Better access to information
  - Record is available 24 hours a day
  - Accessible remotely
  - Legible

- Better quality of information
  - Data are more complete and accurate
  - Can be sorted, presented selectively

- Better display of information
  - Data can be manipulated, graphed, printed as reports

DOCUMENTATION: *Problem Lists*

- Problem lists are generated as the provider codes episodic care or by direct entry upon reviewing old charts

- Acute and chronic problems are differentiated

- Similar lists can be maintained for immunizations, procedures, medications, etc.

DOCUMENTATION: *Problem Lists*

Patient Summary - PETER CLARK

Close | Add | Remove | Resolve | Alerts

Occupation | Eyes & Optical | Vitals
Habits | Hospital | Immunizations | Maintenance | Medications
Active View | Acute | Allergies | Chronic | Family

Start Date	Resolved Date	Acute Description
1997-12-05		682.6 - CELLULITIS AND ABSCESS OF LEG, EXCEPT FOOT
1997-12-12		682.6 - CELLULITIS AND ABSCESS OF LEG, EXCEPT FOOT
1997-06-04		715.16 - OSTEOARTHROSIS, LOCALIZED, PRIMARY LOWER LEG
1997-02-20		461.1 - ACUTE FRONTAL SINUSITIS
1997-07-07		728.2 - MUSCULAR WASTING AND DISUSE ATROPHY, NEC
1997-08-25		584.5 - ACUTE RENAL FAILURE WITH LESION OF TUBULAR NECROSIS
1999-04-29		253.5 - DIABETES INSIPIDUS

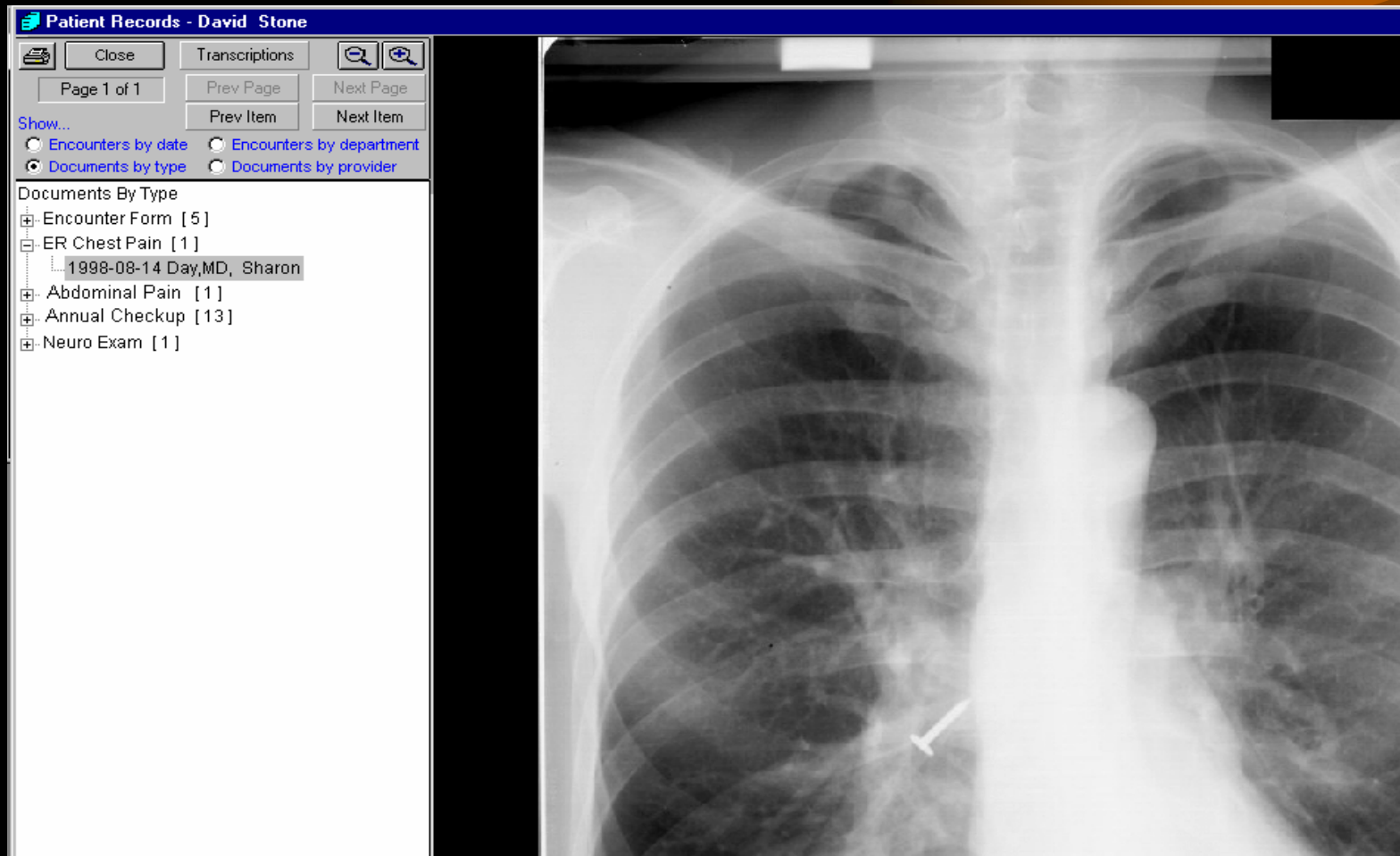# DOCUMENTATION: Clip Art

INFORMATION TRANSFER

- Import data
  - E.g., radiology, laboratory
  - Imported in a timely manner
  - Consistently available

- Export data
  - E.g., e-prescribing
  - Transfer of records

- Share data
  - With providers
  - With patients

INFORMATION TRANSFER
Imported Images

DECISION SUPPORT: *Alerts*

- Conditions are defined that are to be checked whenever a patient's chart is activated

- An alert message is automatically displayed if a patient satisfies the conditions of one or more alert rules

- Rules are
  - Based on EHR data
  - Can be modified as practice guidelines change

DECISION SUPPORT
Disease Management

- Allows grouping of related forms, orders (including prescriptions), and codes

- Ensures that consistent care is provided by all providers in a group practice

- Allows for adherence to "Best Practice" protocols

QA/QI: Reporting

- Data can be used beyond the individual patient
  - Reports on performance by patient type (e.g., diabetes)
  - HEDIS reporting, drug recalls, clinical research

REGULATORY REQUIREMENTS

- Satisfy HIPAA requirements

- Meet accreditation standards

Audit by Connecticut State Medical Society resulted in Main Street Pediatrics being exempted from further audits because of their outstanding documentation

OTHER KEY BENEFITS

- Improved patient satisfaction
  - Patients seek practices because of EHR
- Improved provider quality of life
  - Physicians leave on time with work completed
- Improved recruitment
  - Best available physicians from residency looking for practices with EHRs

BARRIERS TO PROGRESS

- Universal adoption of the EHR

- Information transfer (interoperability)

- Decision support and QA/QI

ADOPTION OF THE EHR

- Disruption: the EHR is a "discontinuous innovation"

- Productivity concerns

- Cost

- IT concerns

  - Ease of use

  - Maintenance requirements

  - Computer crashes and other downtime

INFORMATION TRANSFER
Interoperability

- Commonly-recognized barriers to interoperability
  - Lack of common data standards (SNOMED vs Medcin, HL7, etc.)
  - Privacy/security issues, including ownership of and access to record
  - Legal barriers, including harmonization of privacy laws
  - Inadequate sources of financing to facilitate interoperability

- Underlying barriers requiring long-term solutions
  - Legacy vendor systems that can't easily meet functional standards for interoperability
  - The lack of comprehensive standard clinical definitions

DECISION SUPPORT & QA/QI

- Complex to build

- Not in great demand (hence little investment)

- Required EHR data may not be available

  – Collected but not in defined form

  – Not routinely collected and would slow productivity

FUTURE QUALITY BENEFITS

- Clinical
  - Documentation
  - Information transfer
  - Decision support
  - QA/QI

- Research/public health/policy
  - Research/knowledge management
  - Public Health
  - Policy/accountability

DOCUMENTATION

- Functionality of products will continue to improve
  - Speed of data entry
  - Multi-modal input (e.g., voice recognition)
  - Structuring of stored data

- Percentage of information stored in defined form will continue to increase
  - Expert systems to facilitate collection of structured data
  - Use of languages (Medcin, SNOMED)
  - Expansion of defined clinical domain beyond languages

INFORMATION TRANSFER
Interoperability

- Information will be more easily transferred from
  - Provider to provider, including transfer among different vendor systems
  - Provider to patient and vice-versa

- Patient-centered care will allow all providers to work from the same information (the same medical record)

- Interoperability will be achieved stepwise
  - Transfer of key portions of record, much of it text
  - Transfer of clinical data in defined, common format (*beyond* level accommodated by coding systems)
  - Transfer of information selectively to increase utility, productivity

DECISION SUPPORT & QA/QI

- Enhanced alerts and reminders will have
  - Broader coverage
  - Better activation sensitivity/specificity

- Decision support will include diagnostic aids and therapeutic suggestions

- Reporting will be available by epidemiologic cohorts
  - Adherence to protocols by provider
  - Trending of performance over time

QA/QI: Benchmarking

- When data storage, decision support, and reporting are incorporated in EHRs *in an interoperable format and containing sufficient structured data*, performance can be compared across practices

- QA/QI and benchmarking will contribute to
  - Identifying best practices
  - Revealing best achievement
  - Discovering substandard performance

RESEARCH

- Mining of data structured epidemiologically will identify
  - Topics deserving of research
  - Research priorities
  - Best practices
  - Practices that are harmful, add no value, or are more costly than alternative practices
- Clinical trials will be cheaper and quicker
- Time to disseminate research results to practice will be reduced (via decision support tools)

PUBLIC HEALTH

- Monitoring safety of drugs, devices

- Disease surveillance

- Homeland security/bioterrorism

POLICY/ACCOUNTABILITY

- Paying for performance

- Monitoring prescribing, especially controlled substances

- Preventing fraud, waste, and abuse